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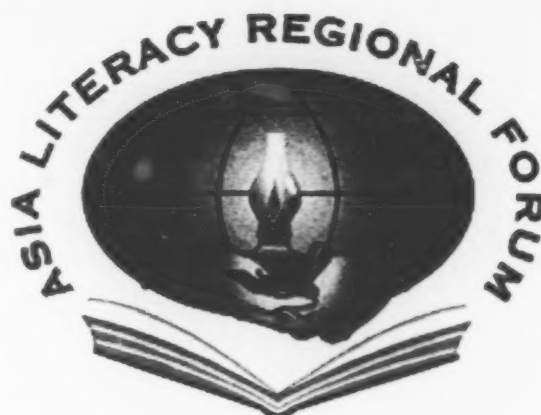
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ABSTRACT

First-generation Distance Education (DE) was characterized by the use of a single technology (correspondence instruction) and lack of direct interaction between students and teachers. In second-generation DE, integrated multiple media permitted two-way communication between students and tutors, but not between students and the originators of learning materials. Thanks to technological advances, students in third-generation DE programs can engage in direct two-way communication with the teachers originating the instruction and, in many cases, they can also communicate directly with other students. The five most important media in education are as follows: human media, text or print (including still graphics), audio, television, and computing. All five media may be used in various one- and two-way technology applications in DE. When deciding which media and technologies to combine, DE program providers must consider the following issues: each technology's accessibility for learners and flexibility for the target group; each technology's cost structure and per-learner cost; the best technologies for supporting the types of learning and instructional approaches required; organizational requirements and barriers to be removed; each technology's novelty; and the speed with which courses using each technology can be mounted and revised. Widening access to education is the main consideration when selecting technology for DE. (MN)

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Use (and Misuse) of Technology in Distance Education

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TO THE EDUCATIONAL RESOURCES
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USE (AND MISUSE) OF TECHNOLOGY IN DISTANCE EDUCATION*

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Many statements have been made about technology per se or technology in education. I have selected two, one contemporary from our own organization, the UP Open University, and one decades old from a radio broadcasting pioneer. These two statements beautifully articulate the theme of my talk.

The first statement is by Dr. Paz Eulalia L. Sapla, Vice Chancellor for Student Support Services, UP Open University. Writing about the learning needs of the information generation, she said, "Like the sirens with their enigmatic song in mythology, the technologies beckon, tempt, lure, because they are new and exciting, innovative and challenging.... not to respond to the sirens' song is to be out of step, bound in traditional (sometimes dull) learning models."

The second statement was made by Edward R. Murrow early in his career in broadcasting. Referring to the radio, although the statement can apply to any technology, he said, "This instrument can teach. It can illustrate, yes, and it can even inspire. But it can do so only to the extent that humans are determined to use it to those ends. Otherwise, it is nothing but wires and lights in a box."

These two statements imply two challenges to educational institutions as they confront the use of technology in their programs. The first challenge lies in our response to the selection of the sirens, for there are many. The second challenge lies in the application of human creativity to transform the wires and lights into learning activities.

The sirens sing of the strengths and the advantages of the technology. But we must also listen to another voice intoning their weaknesses and drawbacks. As well, to the sober voice explaining the requirements for their use. And we must look at the technology not in the milieu of the siren but in our own context as a teaching institution - our organization, our students, our teachers and yes, our finances.

Delivered during the Asia Literacy Forum, 8 May 1997, Manila Galleria Suites Hotel,
Amorsolo Hall, Ortigas Center, Pasig City

DEVELOPMENT OF DISTANCE EDUCATION

But before I discuss technology allow me first to say something about distance education which will put in context our discussions about technology. For if there are generations of technology, we can also talk about generations of distance education.

The first generation distance education is sometimes called the correspondence model because correspondence study is its typical form. First generation distance education is characterized by the predominant use of a single technology and lack of direct interaction between the student and the teacher which originates the instruction.

The second generation distance education is characterized by the use of integrated multiple media. In this model, instructional materials are specially designed for study at a distance and provision is made for the student to have two way communication but still not directly with the originator of the learning materials but with a tutor. This is the model currently practiced at the UP Open University where we have study sessions with tutors at learning centers to complement the learning packages we provide students.

Third generation distance education is characterized by direct two-way communication between the student and the teacher which originates the instruction and in many cases also direct communication among students. An example of this is the interactive studies via satellite conducted by the Open University of Israel where students in remote classes view live lessons transmitted from a central studio, ask questions and receive responses.

From these models of distance education we can see that Distance Education has progressed as technology has progressed. This is not surprising since distance education is characterized by the separation of teacher and learner in distance and time and technology has been used by educational institutions to bridge this gap - print technology at first, the only one available in a long time, followed by other media and technologies (radio, TV, audio tapes, videotapes, teleconferencing, computer networks) as they became available.

MEDIA AND TECHNOLOGY

At this point I would I would also like to say something about media and technology. The term medium is used to describe a form or method of communication with each medium having a unique way of presenting and

organizing knowledge. A medium however, may be carried using different delivery technologies. For example, television, others call this video, is a medium which may be delivered either by satellite, cable, terrestrial broadcast, video cassette or video disc.

The five most important media in education, according to Tony Bates, of the University of British Columbia and formerly of the Open University, United Kingdom are:

- human media
- text or print (including still graphics)
- audio
- television
- computing

Others includes practical work as another medium

Table 1 summarizes the relationship between media and technologies and Table 2 gives examples of one way and two way application in Distance Education of each medium.

Table 1. The relationship between media and technology.

Media	Technologies
Text (including graphics)	Print
Audio	Cassettes; radio; Telephone
Television	Broadcasting; video cassettes; video discs; cable; satellite; fiber-optics; ITFS; microwave; video conferencing
Computing	Computers; telephone; satellite; fiber-optics; ISDN; CD-ROM; CD-1
Practical work	Home experiment kits Field work

Table 2. One-Way and two-way technology applications
in distance education

Media	One-way technology applications	Two-way technology applications
Text	Course units; supplementary materials	Correspondence tutoring
Audio	Cassette, programmes; radio programmes	Telephone tutoring; audio conferencing
Television	Broadcast programmes; cassette programmes	Interactive television (TV out; telephone in); video conferencing
Computing	CAL, CAI, CBT; data- bases; multimedia	E-mail; interactive data- bases; computer conferencing
Practical work	Home experiment kits	Summer sessions at LCs

CRITERIA FOR DECISION MAKING

Given the menu of technologies in Table 2, distance education providers need to have a set of criteria for deciding which media and technologies to choose. Tony Bates suggests the following considerations:

Access: how accessible is a particular technology for learners? How flexible is it for a particular target group?

Costs: what is the cost structure of each technology? What is the unit cost per learner?

Teaching and Learning: what kinds of learning are needed? What instructional approaches will best meet these needs? What are the best technologies for supporting this teaching and learning~

Interactivity and user-friendliness: what kind of interaction does this technology enable? How easy is it to use?

Organization issues: what are the organizational requirements, and the barriers to be removed, before this technology can be used successfully? What changes in organization need to be made?

Novelty: how new is this technology?

Speed: how quickly can courses be mounted with this technology? How quickly can materials be changed?

ACCESS. This is the primary reason for the institution of distance education programs and therefore the most important criterion for deciding on the appropriateness of a particular technology. It is therefore important for decision makers to determine the priority target learners to be served, what media are accessible to them and where learning will take place.

Delivery to the house would certainly be the best way to address the question of access. In developed countries we may reasonably expect several technologies that can be utilized: print, audiocassette, videocassette, TV by cable, telephone, house experiment kits. But in developing countries, print may be the only one that can be delivered to the learner's house.

Another point to consider is that although a technology like TV by broadcast may be accessible to homes it may be inaccessible on account of time. A learner may have a TV at home but the educational program may be

broadcast at a time when the individual is not home so unless he/she possesses another technology such as the recording VCR, then the medium is not really accessible.

Delivery to learning centers may in fact be a good alternative even when the technology is available for delivery to individual houses. This allows for interpersonal student support through contact with tutors and other students something which is important in distance education.

COSTS. This is an inescapable consideration in the choice of media. An analysis of costs and cost structure of technologies is essential for making sensible decisions. For example one must distinguished between capital cost such as the cost of television studio and equipment vs operating or recurrent costs needed for people to operate the equipment, to buy supplies, to pay for electric bills and to deliver the finished product. There is also a need to differentiate between fixed vs variable costs as well as production vs delivery costs. For example, the cost of the regular staff for TV production is fixed but the cost of production would depend on the number of programs produced and the kind of production since location shooting for example and use of many special effects would be expensive. On the other hand, once produced, the production cost is fixed for a specific course but the distribution cost would be variable depending on the number and spread of students.

Without making a detailed cost analysis, we may be able to answer the question of whether another medium can do an acceptably good job at a lower cost.³ For example, why write a full self-instructional text if there is an excellent existing, low cost text for which one needs to write only a study guide or what is called a wrap-around material which may include overviews, alternative explanations, and self assessment questions.

Conversely, if for instance you get tempted from the sirens' song to use interactive video, you'll need to resist the temptation until you answer the question of whether your learners need moving pictures at all. Would the use of the still pictures accompanied by commentary on audio-cassette (a media combination called audio-vision) be as effective?

TEACHING AND LEARNING. While many feel that teaching and learning considerations ought to be the primary considerations in the choice of technology, they are less strong as discriminators than access or costs. This is in part due to the flexibility of both teachers and learners which allows them to make the best of the available medium or technology.

In choosing a medium we need to be aware that media differ in the extent to which they can represent different kinds of knowledge. For example,

print being a very dense medium can handle and precisely represent large amounts of facts, ideas, rules and principles as well as detailed, lengthy or complex arguments. Audio does not have this capability but it is great in handling discussions.

Media also differ in their ability to handle abstract or concrete knowledge. TV or example can demonstrate experiments and represent complex social situations but it is not good for providing large quantities of abstract information.

There are also differences among media in their ability to develop different type of skills. Those which can combine strong presentation and qualities with good learner control are best for skills development. Take for example, audiocassette vs. videocassette vs televised, commercially broadcast lecture. Videocassette would be superior among the three considering its presentational capabilities as well as the control given to the learner in setting the pace of learning.

Given the many pedagogical differences between media and technologies, one must be careful not to succumb to the siren's song to use a technology simply for a popular mode of delivery such as entertainment-style broadcast. On the other hand, there is also something to be gained to listen to some parts of the song which extol a media's presentational strengths so that a medium is utilized to its fullest capabilities. It is sad therefore to see video being used for talking heads type of presentation when it can present much more. Why have a lecturer go in front of a screen to describe tissue culture techniques when a demonstration can be presented complete with slow motion and close-up features.

INTERACTIVITY AND USER-FRIENDLINESS. Print is still the most user friendly among the media considering that it is conveniently portable and self-sufficient requiring no other piece of equipment to access it. However, there is a limit to the interactivity which can be incorporated. Use of self-assessment questions coupled with discussions on the range of answers expected is one way. But print is weak in terms of feedback not only because of the difficulty in providing feedback for questions which require complex responses but also because students can easily access the answers without active processing the question.

Most learning theories suggests that effective learning requires active participation of learner. They must not simply read, listen or view. Participation of the learner is only one aspect of interactivity; the other is feedback.

Bjorn Holmberg has, in fact, likened good distance teaching to a guided conversation aimed at teaching. And this is achieved through a good design of the instructional materials such as the use of embedded questions and feedback.

User friendliness is also an important factor and the user here refers not only to the learner but also to the originator of the materials. While computer based learning possibly provides the greatest interactivity, designers and teachers may find difficulty and may require considerable training to mount a high quality material and students may take many hours to learn to use the technology.

An important aspect of user friendliness is learner control. Given that the philosophy of open learning is improvement of learner control we need to consider the extent to which a given technology will allow the learner to control the time, pace, and place of learning.

ORGANIZATIONAL ISSUES. Both the external and internal ecologies of an organization must be assessed. For example, we at UPOU would like to mount some courses online meaning using computer networks but we are limited by the telecommunications backbone available in the country. We need either terrestrial telephone lines or satellite facilities. Neither are fully in place.

The use of a new technology also requires a champion at the higher levels of the organization who would be able to get the financial allocation. But commitment at a senior level is not enough because human resources are needed to utilize the technology. In addition, there is the issue that use of a new technology may take resources which are also needed for other programs of the institution. The leader of the institution must be sensitive to all these issues.

NOVELTY. One might consider novelty as a nonfactor but it can in fact be the most enticing song - for both users and fund providers. For example, while audio combined with visuals has been found to be a highly effective medium as well as being low cost, it lacks sex appeal when compared to the newer technologies such as interactive video discs and computer networks. There is also the fact that novelty may stimulate a stagnant and languishing faculty.

SPEED. The speed with which programs or course can be launched is becoming an important factor because of demands for personnel upgrading in

most institutions today. But the other side of this factor is the flexibility in updating course materials.

CONCLUSIONS

The important message I believe of this paper is that decision making about technology in distance education is a complex process. But we need to keep the goal of distance education or open learning foremost in our minds that of widening access to education. This is important because we would not want to choose a medium or technology which will in fact negate the very reason for putting up an open learning or distance education program.

In our university, there are those who scoff at the fact that our distance education program is very low tech. We can go high tech but our target groups would not have the technology to receive what we may deliver. We plan to mount some courses online but we will do so with eyes wide open and keeping in sight only particular groups. Majority of our programs will still be print based and learning center supported.

The information highway is not a single straight road. Several roads comprise the highway. In addition there is not one destination for all of us. It is important that we keep our goals in sight. As the White Rabbit in Alice in Wonderland said, "If you don't know where you are going, any road will do." Unfortunately not all roads lead to our desired destination.

Let not the sirens lure us to a fascination of the technology per se but rather, and I'd like to quote again from our Vice Chancellor, Dr. Saplala" ... like Odysseus of old whose ultimate sights were set on reaching Ithaca and his wife Penelope(we) must keep steadfast to the goal of helping the distance learner become a successful learner."

References:

Bates, A. W. Technology, Open Learning and Distance Education. London: Routledge. 1995

Saplala, P. E. L. "On the UPOU Students: Open Learning Needs of the Information-Generation". Paper published for the souvenir program on the occasion of the UPOU 2nd anniversary celebration. February 1997.

Taylor, J. C. " Perspectives On the Educational Uses of Technology". Report produced for the International Council for Distance Education Standing Conference of Presidents. Lillehamma, Norway. June 1996.